

Docket No.: 57454-278

Image AF 2817
PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of

Akira OHTA, et al.

Serial No.: 09/987,579

Filed: November 15, 2001

For: HIGH-FREQUENCY AMPLIFIER AND RADIO TRANSMISSION DEVICE WITH
CIRCUIT SCALE AND CURRENT CONSUMPTION REDUCED TO ACHIEVE HIGH
EFFICIENCY

Mail Stop AF
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Dear Sir:

Transmitted herewith is an Amendment in the above-identified application.

- ☒ No additional fee is required.
☐ Applicant is entitled to small entity status under 37 CFR 1.27
☐ Also attached:

The fee has been calculated as shown below:

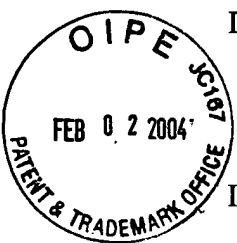
	NO. OF CLAIMS	HIGHEST PREVIOUSLY PAID FOR	EXTRA CLAIMS	RATE	FEE
Total Claims	12	20	0	\$18.00 =	\$0.00
Independent Claims	2	3	0	\$86.00 =	\$0.00
Multiple claims newly presented					\$0.00
Fee for extension of time					\$0.00
Total of Above Calculations					\$0.00

- ☐ Please charge my Deposit Account No. 500417 in the amount of \$0.00. An additional copy of this transmittal sheet is submitted herewith.
- ☒ The Commissioner is hereby authorized to charge payment of any fees associated with this communication or credit any overpayment, to Deposit Account No. 500417, including any filing fees under 37 CFR 1.16 for presentation of extra claims and any patent application processing fees under 37 CFR 1.17.

Respectfully submitted,
MCDERMOTT, WILL & EMERY

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Date: February 2, 2004



Docket No.: 57454-278

PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of	:	RESPONSE UNDER 37 CFR 1.116
	:	<u>EXPEDITED PROCEDURE</u>
Akira OHTA, et al.	:	
	:	Customer Number: 20277
Serial No.: 09/987,579	:	
	:	Confirmation Number: 7330
Filed: November 15, 2001	:	
	:	Group Art Unit: 2817
	:	
	:	Examiner: Stephen E. Jones

For: HIGH-FREQUENCY AMPLIFIER AND RADIO TRANSMISSION DEVICE
WITH CIRCUIT SCALE AND CURRENT CONSUMPTION REDUCED TO
ACHIEVE HIGH EFFICIENCY

REQUEST FOR RECONSIDERATION

Mail Stop AF
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

This Request is submitted in response to the Office Action mailed November 3, 2003.

Claims 1-5 are presented for examination. These claims stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Makino et al. in view of the Krauss et al. publication.

This rejection is respectfully traversed for the following reasons. In the application of a rejection under 35 U.S.C. §103, it is incumbent upon the Examiner to factually support a conclusion of obviousness. As stated in *Graham v. John Deere Co.* 383 U.S. 1, 13, 148 U.S.P.Q. 459, 465 (1966), obviousness under 35 U.S.C. §103 must

be determined by considering (1) the scope and content of the prior art; (2) ascertaining the differences between the prior art and the claims in issue; and (3) resolving the level of ordinary skill in the pertinent art.

As demonstrated below, the Examiner has failed to ascertain the differences between the prior art and the claims in issue.

In particular, claim 1 recites a high-frequency amplifier connectable to a non-reciprocal circuit element having an input impedance lower than an output impedance.

The amplifier comprises:

- a substrate;
- an amplifier element provided on said substrate for receiving and amplifying an input signal;
- a harmonic processing circuit provided on said substrate for providing a proper output load of harmonics included in an output signal from said amplifier element to improve an efficiency of said amplifier element; and
- a filter element provided on said substrate to receive an output from said harmonic processing circuit for selectively passing a signal to be supplied to said non-reciprocal circuit element by using a predetermined frequency as a cutoff frequency.

Hence, claim 1 requires the harmonic processing circuit to be provided on the same substrate with the amplifier and the filter element for providing a proper output load of harmonics included in an output signal from said amplifier element to improve an efficiency of said amplifier element.

As the Examiner admits Makino does not disclose the harmonic processing circuit. Instead, Makino discloses that output matching circuit 16 without the harmonic processing circuit is connected to amplifier 15.

The Examiner relies upon Krauss for disclosing “that output matching circuits are used to reduce harmonics.”

Considering the reference, Krauss discloses that “[t]he output matching network is also often used to reduce harmonics in the output to an acceptable level (although this can be done with filters that perform no impedance conversion)” (page 418, lines 6-8).

Accordingly, Krauss discloses that the output matching circuit does not necessarily process harmonics. Hence, Krauss provides no reason to conclude that the output matching circuit 16 of Makino processes harmonics.

Therefore, one skilled in the art would have no reason to conclude that Makino discloses the harmonic processing circuit provided on the same substrate with the amplifier and the filter element, as claim 1 requires.

Moreover, the Examiner has apparently failed to give adequate consideration to the particular problems and solution addressed by the claimed invention. *Northern Telecom, Inc. v. Datapoint Corp.*, 908 F.2d 931, 15 USPQ2d 1321 (Fed. Cir. 1990); *In re Rothermel*, 276 F.2d 393, 125 USPQ 328 (CCPA 1960). Specifically, as recited in claim 1 and disclosed, for example, on page 11, lines 6-24 of the present application, the harmonic processing circuit is provided on the substrate for providing a proper output load of harmonics included in an output signal from the amplifier element to improve an efficiency of the amplifier element.

As explained in the present application, the reflectance of harmonics relative to the amplifier element depends on a position of the harmonic processing circuit. When the harmonic processing circuit is provided in the position prescribed by the claimed invention, harmonics have a large reflectance relative to the amplifier improving the efficiency of the amplifier.

Neither Makino nor Krauss suggests improving the efficiency of the amplifier by providing a proper output load of harmonics included in the output signal of the amplifier.

Accordingly, combined teachings of the references are not sufficient to suggest the harmonic processing circuit provided on the substrate for providing a proper output load of harmonics included in an output signal from said amplifier element to improve an efficiency of said amplifier element, as claim 1 recites.

Moreover, the Examiner relies upon FIG. 7 of Makino for disclosing the impedance conversion circuit and the amplifier on a common substrate (circuit board 51). However, FIG. 7 does not show that impedance conversion circuit 6 (considered by the Examiner to correspond to the claimed filter) is provided on the circuit board 51. Makino discloses that the impedance conversion circuit 6 is added to port P1 in isolator 1. FIG. 7 shows that a box containing the isolator 1 is provided on the circuit board 51. However, this figure does not show the impedance conversion circuit 6, and, therefore, FIG. 7 gives no reason to conclude that this element is provided on the circuit board 51.

Furthermore, as discussed above, Makino does not disclose the harmonic processing circuit. Kraus is relied upon for disclosing this element. However, Kraus

cannot suggest providing the harmonic processing circuit on a common substrate with the amplifier element and the impedance conversion circuit of Makino.

It is well settled that the test for obviousness is what the combined teachings of the references would have suggested to those having ordinary skill in the art. *Cable Electric Products, Inc. v. Genmark, Inc.*, 770 F.2d 1015, 226 USPQ 881 (Fed. Cir. 1985). In determining whether a case of prima facie obviousness exists, it is necessary to ascertain whether the prior art teachings appear to be sufficient to one of ordinary skill in the art to suggest making the claimed substitution or other modification. *In re Lulu*, 747 F.2d 703, 705, 223 USPQ 1257, 1258 (Fed. Cir. 1984).


As demonstrated above, the combined teachings of Makino and Krauss are not sufficient to arrive at the structure recited in claim 1. Accordingly, Applicants submit that the Examiner has failed to establish a case of prima facie obviousness. Applicants, therefore, respectfully submit that the rejection of claims 1-5 under 35 U.S.C. § 103 is improper and should be withdrawn.

In view of the foregoing, and in summary, claims 1-5 are considered to be in condition for allowance. Favorable reconsideration of this application is respectfully requested.

To the extent necessary, a petition for an extension of time under 37 C.F.R. 1.136 is hereby made. Please charge any shortage in fees due in connection with the filing of this paper, including extension of time fees, to Deposit Account 500417 and please credit any excess fees to such deposit account.

Respectfully submitted,

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